RAW SEQUENCE LISTING
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Application Serial Number: _10/758,672_
Source: _1,FWO_
Date Processed by STIC: _1/29/04_

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Revised 10/08/03

IFWO

RAW SEQUENCE LISTING   DATE: 01/29/2004
PATENT APPLICATION: **US/10/758,672**   TIME: 15:33:28

Input Set : **A:\35966B.txt**
Output Set: **N:\CRF4\01292004\J758672.raw**

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   4 <110> APPLICANT: Han, Hui-Quan
   5         Kwak, Keith
   7 <120> TITLE OF INVENTION: Human E3 Alpha Ubiquitin Ligase Family
   9 <130> FILE REFERENCE: 01017/35966B
C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/758,672
C--> 12 <141> CURRENT FILING DATE: 2004-01-15
  14 <150> PRIOR APPLICATION NUMBER: US 09/724,126
  15 <151> PRIOR FILING DATE: 2000-11-28
  17 <150> PRIOR APPLICATION NUMBER: US 60/187,911
  18 <151> PRIOR FILING DATE: 1999-03-08
  20 <160> NUMBER OF SEQ ID NOS: 29
  22 <170> SOFTWARE: PatentIn Ver. 2.0
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Does Not Comply
Corrected Diskette Needed

ERRORED SEQUENCES

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 511 <210> SEQ ID NO: 2
 512 <211> LENGTH: 1749
 513 <212> TYPE: PRT
 514 <213> ORGANISM: Homo sapiens
 516 <400> SEQUENCE: 2
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 521            20                  25                  30
 523 Val Asp Phe Tyr Thr Ala Phe Leu His His Leu Ala Gln Leu Val Pro
 524            35                  40                  45
 526 Glu Ile Tyr Phe Ala Glu Met Asp Pro Asp Leu Glu Lys Gln Glu Glu
 527        50                  55                  60
 529 Ser Val Gln Met Ser Ile Phe Thr Pro Leu Glu Trp Tyr Leu Phe Gly
 530 65                  70                  75                  80
 532 Glu Asp Pro Asp Ile Cys Leu Glu Lys Leu Lys His Ser Gly Ala Phe
 533            85                  90                  95
 535 Gln Leu Cys Gly Arg Val Phe Lys Ser Gly Glu Thr Thr Tyr Ser Cys
 536            100                 105                 110
 538 Arg Asp Cys Ala Ile Asp Pro Thr Cys Val Leu Cys Met Asp Cys Phe
 539            115                 120                 125
 541 Gln Asp Ser Val His Lys Asn His Arg Tyr Lys Met His Thr Ser Thr
 542        130                 135                 140
 544 Gly Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu Ala Trp Lys Thr Gly
 545 145                 150                 155                 160
 547 Pro Phe Cys Val Asn His Glu Pro Gly Arg Ala Gly Thr Ile Lys Glu
 548            165                 170                 175
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550 Asn Ser Arg Cys Pro Leu Asn Glu Glu Val Ile Val Gln Ala Arg Lys
551           180             185             190
553 Ile Phe Pro Ser Val Ile Lys Tyr Val Val Glu Met Thr Ile Trp Glu
554           195             200             205
556 Glu Glu Lys Glu Leu Pro Pro Glu Leu Gln Ile Arg Glu Lys Asn Glu
557     210             215             220
559 Arg Tyr Tyr Cys Val Leu Phe Asn Asp Glu His His Ser Tyr Asp His
560 225             230             235             240
562 Val Ile Tyr Ser Leu Gln Arg Ala Leu Asp Cys Glu Leu Ala Glu Ala
563           245             250             255
565 Gln Leu His Thr Thr Ala Ile Asp Lys Glu Gly Arg Arg Ala Val Lys
566           260             265             270
568 Ala Gly Ala Tyr Ala Ala Cys Gln Glu Ala Lys Glu Asp Ile Lys Ser
569           275             280             285
571 His Ser Glu Asn Val Ser Gln His Pro Leu His Val Glu Val Leu His
572     290             295             300
574 Ser Glu Ile Met Ala His Gln Lys Phe Ala Leu Arg Leu Gly Ser Trp
575 305             310             315             320
577 Met Asn Lys Ile Met Ser Tyr Ser Ser Asp Phe Arg Gln Ile Phe Cys
578           325             330             335
580 Gln Ala Cys Leu Arg Glu Glu Pro Asp Ser Glu Asn Pro Cys Leu Ile
581           340             345             350
583 Ser Arg Leu Met Leu Trp Asp Ala Lys Leu Tyr Lys Gly Ala Arg Lys
584           355             360             365
586 Ile Leu His Glu Leu Ile Phe Ser Ser Phe Phe Met Glu Met Glu Tyr
587     370             375             380
589 Lys Lys Leu Phe Ala Met Glu Phe Val Lys Tyr Tyr Lys Gln Leu Gln
590 385             390             395             400
592 Lys Glu Tyr Ile Ser Asp Asp His Asp Arg Ser Ile Ser Ile Thr Ala
593           405             410             415
595 Leu Ser Val Gln Met Phe Thr Val Pro Thr Leu Ala Arg His Leu Ile
596           420             425             430
598 Glu Glu Gln Asn Val Ile Ser Val Ile Thr Glu Thr Leu Leu Glu Val
599           435             440             445
601 Leu Pro Glu Tyr Leu Asp Arg Asn Asn Lys Phe Asn Phe Gln Gly Tyr
602     450             455             460
604 Ser Gln Asp Lys Leu Gly Arg Val Tyr Ala Val Ile Cys Asp Leu Lys
605 465             470             475             480
607 Tyr Ile Leu Ile Ser Lys Pro Thr Ile Trp Thr Glu Arg Leu Arg Met
608           485             490             495
610 Gln Phe Leu Glu Gly Phe Arg Ser Phe Leu Lys Ile Leu Thr Cys Met
611           500             505             510
613 Gln Gly Met Glu Glu Ile Arg Arg Gln Val Gly Gln His Ile Glu Val
614           515             520             525
616 Asp Pro Asp Trp Glu Ala Ala Ile Ala Ile Gln Met Gln Leu Lys Asn
617     530             535             540
619 Ile Leu Leu Met Phe Gln Glu Trp Cys Ala Cys Asp Glu Glu Leu Leu
620 545             550             555             560
622 Leu Val Ala Tyr Lys Glu Cys His Lys Ala Val Met Arg Cys Ser Thr
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RAW SEQUENCE LISTING   DATE: 01/29/2004
PATENT APPLICATION: US/10/758,672   TIME: 15:33:29

Input Set : A:\35966B.txt
Output Set: N:\CRF4\01292004\J758672.raw

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625 Ser Phe Ile Ser Ser Ser Lys Thr Val Val Gln Ser Cys Gly His Ser
626                580                585                590
628 Leu Glu Thr Lys Ser Tyr Arg Val Ser Glu Asp Leu Val Ser Ile His
629            595                600                605
631 Leu Pro Leu Ser Arg Thr Leu Ala Gly Leu His Val Arg Leu Ser Arg
632         610                615                620
634 Leu Gly Ala Val Ser Arg Leu His Glu Phe Val Ser Phe Glu Asp Phe
635 625                630                635                640
637 Gln Val Glu Val Leu Val Glu Tyr Pro Leu Arg Cys Leu Val Leu Val
638                645                650                655
640 Ala Gln Val Val Ala Glu Met Trp Arg Arg Asn Gly Leu Ser Leu Ile
641            660                665                670
643 Ser Gln Val Phe Tyr Tyr Gln Asp Val Lys Cys Arg Glu Glu Met Tyr
644         675                680                685
646 Asp Lys Asp Ile Ile Met Leu Gln Ile Gly Ala Ser Leu Met Asp Pro
647      690                695                700
649 Asn Lys Phe Leu Leu Leu Val Leu Gln Arg Tyr Glu Leu Ala Glu Ala
650 705                710                715                720
652 Phe Asn Lys Thr Ile Ser Thr Lys Asp Gln Asp Leu Ile Lys Gln Tyr
653                725                730                735
655 Asn Thr Leu Ile Glu Glu Met Leu Gln Val Leu Ile Tyr Ile Val Gly
656            740                745                750
658 Glu Arg Tyr Val Pro Gly Val Gly Asn Val Thr Lys Glu Glu Val Thr
659         755                760                765
661 Met Arg Glu Ile Ile His Leu Leu Cys Ile Glu Pro Met Pro His Ser
662      770                775                780
664 Ala Ile Ala Lys Asn Leu Pro Glu Asn Glu Asn Asn Glu Thr Gly Leu
665 785                790                795                800
667 Glu Asn Val Ile Asn Lys Val Ala Thr Phe Lys Lys Pro Gly Val Ser
668                805                810                815
670 Gly His Gly Val Tyr Glu Leu Lys Asp Glu Ser Leu Lys Asp Phe Asn
671            820                825                830
673 Met Tyr Phe Tyr His Tyr Ser Lys Thr Gln His Ser Lys Ala Glu His
674         835                840                845
676 Met Gln Lys Lys Arg Arg Lys Gln Glu Asn Lys Asp Glu Ala Leu Pro
677      850                855                860
679 Pro Pro Pro Pro Pro Glu Phe Cys Pro Ala Phe Ser Lys Val Ile Asn
680 865                870                875                880
682 Leu Leu Asn Cys Asp Ile Met Met Tyr Ile Leu Arg Thr Val Phe Glu
683                885                890                895
685 Arg Ala Ile Asp Thr Asp Ser Asn Leu Trp Thr Glu Gly Met Leu Gln
686            900                905                910
688 Met Ala Phe His Ile Leu Ala Leu Gly Leu Leu Glu Glu Lys Gln Gln
689         915                920                925
691 Leu Gln Lys Ala Pro Glu Glu Glu Val Thr Phe Asp Phe Tyr His Lys
692      930                935                940
694 Ala Ser Arg Leu Gly Ser Ser Ala Met Asn Ile Gln Met Leu Leu Glu
695 945                950                955                960
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RAW SEQUENCE LISTING   DATE: 01/29/2004
PATENT APPLICATION: US/10/758,672   TIME: 15:33:29

Input Set : A:\35966B.txt
Output Set: N:\CRF4\01292004\J758672.raw

```
       697 Lys Leu Lys Gly Ile Pro Gln Leu Glu Gly Gln Lys Asp Met Ile Thr
       698                 965             970                 975
       700 Trp Ile Leu Gln Met Phe Asp Thr Val Lys Arg Leu Arg Glu Lys Ser
       701                 980             985                 990
       703 Cys Leu Ile Val Ala Thr Thr Ser Gly Ser Glu Ser Ile Lys Asn Asp
       704                 995             1000                1005
       706 Glu Ile Thr His Asp Lys Glu Lys Ala Glu Arg Lys Arg Lys Ala Glu
       707     1010                1015                1020
       709 Ala Ala Arg Leu His Arg Gln Lys Ile Met Ala Gln Met Ser Ala Leu
E-->   710 (025)1025            1030                1035                1040
       712 Gln Lys Asn Phe Ile Glu Thr His Lys Leu Met Tyr Asp Asn Thr Ser
       713                 1045            1050                1055
       715 Glu Met Pro Gly Lys Glu Asp Ser Ile Met Glu Glu Glu Ser Thr Pro
       716             1060            1065                1070
       718 Ala Val Ser Asp Tyr Ser Arg Ile Ala Leu Gly Pro Lys Arg Gly Pro
       719         1075                1080                1085
       721 Ser Val Thr Glu Lys Glu Val Leu Thr Cys Ile Leu Cys Gln Glu Glu
       722     1090                1095                1100
       724 Gln Glu Val Lys Ile Glu Asn Asn Ala Met Val Leu Ser Ala Cys Val
E-->   725 (105)1105            1110                1115                1120
       727 Gln Lys Ser Thr Ala Leu Thr Gln His Arg Gly Lys Pro Ile Glu Leu
       728             1125                1130                1135
       730 Ser Gly Glu Ala Leu Asp Pro Leu Phe Met Asp Pro Asp Leu Ala Tyr
       731             1140                1145                1150
       733 Gly Thr Tyr Thr Gly Ser Cys Gly His Val Met His Ala Val Cys Trp
       734         1155                1160                1165
       736 Gln Lys Tyr Phe Glu Ala Val Gln Leu Ser Ser Gln Gln Arg Ile His
       737     1170                1175                1180
       739 Val Asp Leu Phe Asp Leu Glu Ser Gly Glu Tyr Leu Cys Pro Leu Cys
E-->   740 (185)1185            1190                1195                1200
       742 Lys Ser Leu Cys Asn Thr Val Ile Pro Ile Ile Pro Leu Gln Pro Gln
       743             1205                1210                1215
       745 Lys Ile Asn Ser Glu Asn Ala Asp Ala Leu Ala Gln Leu Leu Thr Leu
       746             1220                1225                1230
       748 Ala Arg Trp Ile Gln Thr Val Leu Ala Arg Ile Ser Gly Tyr Asn Ile
       749         1235                1240                1245
       751 Arg His Ala Lys Gly Glu Asn Pro Ile Pro Ile Phe Phe Asn Gln Gly
       752     1250                1255                1260
       754 Met Gly Asp Ser Thr Leu Glu Phe His Ser Ile Leu Ser Phe Gly Val
E-->   755 (265)1265            1270                1275                1280
       757 Glu Ser Ser Ile Lys Tyr Ser Asn Ser Ile Lys Glu Met Val Ile Leu
       758             1285                1290                1295
       760 Phe Ala Thr Thr Ile Tyr Arg Ile Gly Leu Lys Val Pro Pro Asp Glu
       761             1300                1305                1310
       763 Arg Asp Pro Arg Val Pro Met Leu Thr Trp Ser Thr Cys Ala Phe Thr
       764         1315                1320                1325
       766 Ile Gln Ala Ile Glu Asn Leu Leu Gly Asp Glu Gly Lys Pro Leu Phe
       767     1330                1335                1340
       769 Gly Ala Leu Gln Asn Arg Gln His Asn Gly Leu Lys Ala Leu Met Gln
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[Handwritten note in right margin:] When numbering the first amino acid on a line, begin the number directly under the first letter of the amino acid. e.g. Ala 1025

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E--> 770 (345)              1350              1355              1360
     772 Phe Ala Val Ala Gln Arg Ile Thr Cys Pro Gln Val Leu Ile Gln Lys
     773              1365              1370              1375
     775 His Leu Val Arg Leu Leu Ser Val Val Leu Pro Asn Ile Lys Ser Glu
     776              1380              1385              1390
     778 Asp Thr Pro Cys Leu Leu Ser Ile Asp Leu Phe His Val Leu Val Gly
     779              1395              1400              1405
     781 Ala Val Leu Ala Phe Pro Ser Leu Tyr Trp Asp Asp Pro Val Asp Leu
     782     1410              1415              1420
     784 Gln Pro Ser Ser Val Ser Ser Ser Tyr Asn His Leu Tyr Leu Phe His
E--> 785 (425)              1430              1435              1440
     787 Leu Ile Thr Met Ala His Met Leu Gln Ile Leu Leu Thr Val Asp Thr
     788              1445              1450              1455
     790 Gly Leu Pro Leu Ala Gln Val Gln Glu Asp Ser Glu Glu Ala His Ser
     791              1460              1465              1470
     793 Ala Ser Ser Phe Phe Ala Glu Ile Ser Gln Tyr Thr Ser Gly Ser Ile
     794         1475              1480              1485
     796 Gly Cys Asp Ile Pro Gly Trp Tyr Leu Trp Val Ser Leu Lys Asn Gly
     797     1490              1495              1500
     799 Ile Thr Pro Tyr Leu Arg Cys Ala Ala Leu Phe Phe His Tyr Leu Leu
E--> 800 (505)              1510              1515              1520
     802 Gly Val Thr Pro Pro Glu Glu Leu His Thr Asn Ser Ala Glu Gly Glu
     803              1525              1530              1535
     805 Tyr Ser Ala Leu Cys Ser Tyr Leu Ser Leu Pro Thr Asn Leu Phe Leu
     806              1540              1545              1550
     808 Leu Phe Gln Glu Tyr Trp Asp Thr Val Arg Pro Leu Leu Gln Arg Trp
     809         1555              1560              1565
     811 Cys Ala Asp Pro Ala Leu Leu Asn Cys Leu Lys Gln Lys Asn Thr Val
     812     1570              1575              1580
     814 Val Arg Tyr Pro Arg Lys Arg Asn Ser Leu Ile Glu Leu Pro Asp Asp
E--> 815 (585)              1590              1595              1600
     817 Tyr Ser Cys Leu Leu Asn Gln Ala Ser His Phe Arg Cys Pro Arg Ser
     818    .             1605              1610              1615
     820 Ala Asp Asp Glu Arg Lys His Pro Val Leu Cys Leu Phe Cys Gly Ala
     821              1620              1625              1630
     823 Ile Leu Cys Ser Gln Asn Ile Cys Cys Gln Glu Ile Val Asn Gly Glu
     824     1635              1640              1645
     826 Glu Val Gly Ala Cys Ile Phe His Ala Leu His Cys Gly Ala Gly Val
     827     1650              1655              1660
     829 Cys Ile Phe Leu Lys Ile Arg Glu Cys Arg Val Val Leu Val Glu Gly
E--> 830 (665)              1670              1675              1680
     832 Lys Ala Arg Gly Cys Ala Tyr Pro Ala Pro Tyr Leu Asp Glu Tyr Gly
     833              1685              1690              1695
     835 Glu Thr Asp Pro Gly Leu Lys Arg Gly Asn Pro Leu His Leu Ser Arg
     836              1700              1705              1710
     838 Glu Arg Tyr Arg Lys Leu His Leu Val Trp Gln Gln His Cys Ile Ile
     839         1715              1720              1725
     841 Glu Glu Ile Ala Arg Ser Gln Glu Thr Asn Gln Met Leu Phe Gly Phe
     842     1730              1735              1740
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same
erro

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   1343 <400> SEQUENCE: 4
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   1348                 20                  25                  30
   1350 Asp Leu Thr Arg Glu Val Tyr Gln His Leu Ala His Tyr Val Pro Lys
   1351             35                  40                  45
   1353 Ile Tyr Cys Arg Gly Pro Asn Pro Phe Pro Gln Lys Glu Asp Met Leu
   1354         50                  55                  60
   1356 Ala Gln His Val Leu Leu Gly Pro Met Glu Trp Tyr Leu Cys Gly Glu
   1357  65                  70                  75                  80
   1359 Asp Pro Ala Phe Gly Phe Pro Lys Leu Glu Gln Ala Asn Lys Pro Ser
   1360                 85                  90                  95
   1362 His Leu Cys Gly Arg Val Phe Lys Val Gly Glu Pro Thr Tyr Ser Cys
   1363             100                 105                 110
   1365 Arg Asp Cys Ala Val Asp Pro Thr Cys Val Leu Cys Met Glu Cys Phe
   1366             115                 120                 125
   1368 Leu Gly Ser Ile His Arg Asp His Arg Tyr Arg Met Thr Thr Ser Gly
   1369         130                 135                 140
   1371 Gly Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu Ala Trp Lys Glu Gly
   1372 145                 150                 155                 160
   1374 Pro Tyr Cys Gln Lys His Glu Leu Asn Thr Ser Glu Ile Glu Glu Glu
   1375             165                 170                 175
   1377 Glu Asp Pro Leu Val His Leu Ser Glu Asp Val Ile Ala Arg Thr Tyr
   1378             180                 185                 190
   1380 Asn Ile Phe Ala Ile Thr Phe Arg Tyr Ala Val Glu Ile Leu Thr Trp
   1381         195                 200                 205
   1383 Glu Lys Glu Ser Glu Leu Pro Ala Asp Leu Glu Met Val Glu Lys Ser
   1384     210                 215                 220
   1386 Asp Thr Tyr Tyr Cys Met Leu Phe Asn Asp Glu Val His Thr Tyr Glu
   1387 225                 230                 235                 240
   1389 Gln Val Ile Tyr Thr Leu Gln Lys Ala Val Asn Cys Thr Gln Lys Glu
   1390             245                 250                 255
   1392 Ala Ile Gly Phe Ala Thr Thr Val Asp Arg Asp Gly Arg Arg Ser Val
   1393             260                 265                 270
   1395 Arg Tyr Gly Asp Phe Gln Tyr Cys Glu Gln Ala Lys Ser Val Ile Val
   1396         275                 280                 285
   1398 Arg Asn Thr Ser Arg Gln Thr Lys Pro Leu Lys Val Gln Val Met His
   1399     290                 295                 300
   1401 Ser Ser Ile Val Ala His Gln Asn Phe Gly Leu Lys Leu Leu Ser Trp
   1402 305                 310                 315                 320
   1404 Leu Gly Ser Ile Ile Gly Tyr Ser Asp Gly Leu Arg Arg Ile Leu Cys
   1405             325                 330                 335
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1407 Gln Val Gly Leu Gln Glu Gly Pro Asp Gly Glu Asn Ser Ser Leu Val
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1411         355             360             365
1413 Val Tyr His Gln Leu Phe Met Ser Ser Leu Leu Met Asp Leu Lys Tyr
1414         370             375             380
1416 Lys Lys Leu Phe Ala Val Arg Phe Ala Lys Asn Tyr Gln Gln Leu Gln
1417 385             390             395                 400
1419 Arg Asp Phe Met Glu Asp Asp His Glu Arg Ala Val Ser Val Thr Ala
1420         405             410             415
1422 Leu Ser Val Gln Phe Phe Thr Ala Pro Thr Leu Ala Arg Met Leu Ile
1423         420             425             430
1425 Thr Glu Glu Asn Leu Met Ser Ile Ile Ile Lys Thr Phe Met Asp His
1426         435             440             445
1428 Leu Arg His Arg Asp Ala Gln Gly Arg Phe Gln Phe Glu Arg Tyr Thr
1429         450             455             460
1431 Ala Leu Gln Ala Phe Lys Phe Arg Arg Val Gln Ser Leu Ile Leu Asp
1432 465             470             475                 480
1434 Leu Lys Tyr Val Leu Ile Ser Lys Pro Thr Glu Trp Ser Asp Glu Leu
1435         485             490             495
1437 Arg Gln Lys Phe Leu Glu Gly Phe Asp Ala Phe Leu Glu Leu Leu Lys
1438         500             505             510
1440 Cys Met Gln Gly Met Asp Pro Ile Thr Arg Gln Val Gly Gln His Ile
1441         515             520             525
1443 Glu Met Glu Pro Glu Trp Glu Ala Ala Phe Thr Leu Gln Met Lys Leu
1444         530             535             540
1446 Thr His Val Ile Ser Met Met Gln Asp Trp Cys Ala Ser Asp Glu Lys
1447 545             550             555             560
1449 Val Leu Ile Glu Ala Tyr Lys Lys Cys Leu Ala Val Leu Met Gln Cys
1450             565             570             575
1452 His Gly Gly Tyr Thr Asp Gly Glu Gln Pro Ile Thr Leu Ser Ile Cys
1453         580             585             590
1455 Gly His Ser Val Glu Thr Ile Arg Tyr Cys Val Ser Gln Glu Lys Val
1456         595             600             605
1458 Ser Ile His Leu Pro Val Ser Arg Leu Leu Ala Gly Leu His Val Leu
1459         610             615             620
1461 Leu Ser Lys Ser Glu Val Ala Tyr Lys Phe Pro Glu Leu Leu Pro Leu
1462 625             630             635             640
1464 Ser Glu Leu Ser Pro Pro Met Leu Ile Glu His Pro Leu Arg Cys Leu
1465             645             650             655
1467 Val Leu Cys Ala Gln Val His Ala Gly Met Trp Arg Arg Asn Gly Phe
1468         660             665             670
1470 Ser Leu Val Asn Gln Ile Tyr Tyr Tyr His Asn Val Lys Cys Arg Arg
1471         675             680             685
1473 Glu Met Phe Asp Lys Asp Val Val Met Leu Gln Thr Gly Val Ser Met
1474         690             695             700
1476 Met Asp Pro Asn His Phe Leu Met Ile Met Leu Ser Arg Phe Glu Leu
1477 705             710             715             720
1479 Tyr Gln Ile Phe Ser Thr Pro Asp Tyr Gly Lys Arg Phe Ser Ser Glu
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1480                725                730                735
1482 Ile Thr His Lys Asp Val Val Gln Gln Asn Asn Thr Leu Ile Glu Glu
1483                740                745                750
1485 Met Leu Tyr Leu Ile Ile Met Leu Val Gly Glu Arg Phe Ser Pro Gly
1486           755                760                765
1488 Val Gly Gln Val Asn Ala Thr Asp Glu Ile Lys Arg Glu Ile Ile His
1489      770                775                780
1491 Gln Leu Ser Ile Lys Pro Met Ala His Ser Glu Leu Val Lys Ser Leu
1492 785                790                795                800
1494 Pro Glu Asp Glu Asn Lys Glu Thr Gly Met Glu Ser Val Ile Glu Ala
1495                805                810                815
1497 Val Ala His Phe Lys Lys Pro Gly Leu Thr Gly Arg Gly Met Tyr Glu
1498           820                825                830
1500 Leu Lys Pro Glu Cys Ala Lys Glu Phe Asn Leu Tyr Phe Tyr His Phe
1501           835                840                845
1503 Ser Arg Ala Glu Gln Ser Lys Ala Glu Glu Ala Gln Arg Lys Leu Lys
1504      850                855                860
1506 Arg Gln Asn Arg Glu Asp Thr Ala Leu Pro Pro Pro Val Leu Pro Pro
1507 865                870                875                880
1509 Phe Cys Pro Leu Phe Ala Ser Leu Val Asn Ile Leu Gln Ser Asp Val
1510           885                890                895
1512 Met Leu Cys Ile Met Gly Thr Ile Leu Gln Trp Ala Val Glu His Asn
1513           900                905                910
1515 Gly Tyr Ala Trp Ser Glu Ser Met Leu Gln Arg Val Leu His Leu Ile
1516           915                920                925
1518 Gly Met Ala Leu Gln Glu Glu Lys Gln His Leu Glu Asn Val Thr Glu
1519      930                935                940
1521 Glu His Val Val Thr Phe Thr Phe Thr Gln Lys Ile Ser Lys Pro Gly
1522 945                950                955                960
1524 Glu Ala Pro Lys Asn Ser Pro Ser Ile Leu Ala Met Leu Glu Thr Leu
1525           965                970                975
1527 Gln Asn Ala Pro Tyr Leu Glu Val His Lys Asp Met Ile Arg Trp Ile
1528           980                985                990
1530 Leu Lys Thr Phe Asn Ala Val Lys Lys Met Arg Glu Ser Ser Pro Thr
1531      995                1000               1005
1533 Ser Pro Val Ala Glu Thr Glu Gly Thr Ile Met Glu Glu Ser Ser Arg
1534      1010               1015               1020
1536 Asp Lys Asp Lys Ala Glu Arg Lys Arg Lys Ala Glu Ile Ala Arg Leu
E--> 1537 025)/025            1030               1035               1040
1539 Arg Arg Glu Lys Ile Met Ala Gln Met Ser Glu Met Gln Arg His Phe
1540                1045               1050               1055
1542 Ile Asp Glu Asn Lys Glu Leu Phe Gln Gln Thr Leu Glu Leu Asp Ala
1543           1060               1065               1070
1545 Ser Thr Ser Ala Val Leu Asp His Ser Pro Val Ala Ser Asp Met Thr
1546      1075               1080               1085
1548 Leu Thr Ala Leu Gly Pro Thr Gln Thr Gln Val Pro Glu Gln Arg Gln
1549      1090               1095               1100
1551 Phe Val Thr Cys Ile Leu Cys Gln Glu Glu Gln Glu Val Lys Val Glu
E--> 1552 105)//05            1110               1115               1120
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same error

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        1555           1125                1130                1135
        1557 Ser Lys Asn Arg Ser Lys Phe Ile Gln Asp Pro Glu Lys Tyr Asp Pro
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        1560 Leu Phe Met His Pro Asp Leu Ser Cys Gly Thr His Thr Ser Ser Cys
        1561           1155                1160                1165
        1563 Gly His Ile Met His Ala His Cys Trp Gln Arg Tyr Phe Asp Ser Val
        1564      1170           1175                1180
        1566 Gln Ala Lys Glu Gln Arg Arg Gln Gln Arg Leu Arg Leu His Thr Ser
E-->    1567 (185)             1190                1195                1200
        1569 Tyr Asp Val Glu Asn Gly Glu Phe Leu Cys Pro Leu Cys Glu Cys Leu
        1570           1205                1210                1215
        1572 Ser Asn Thr Val Ile Pro Leu Leu Leu Pro Pro Arg Asn Ile Phe Asn
        1573           1220                1225                1230
        1575 Asn Arg Leu Asn Phe Ser Asp Gln Pro Asn Leu Thr Gln Trp Ile Arg
        1576           1235                1240                1245
        1578 Thr Ile Ser Gln Gln Ile Lys Ala Leu Gln Phe Leu Arg Lys Glu Glu
        1579      1250                1255                1260
        1581 Ser Thr Pro Asn Asn Ala Ser Thr Lys Asn Ser Glu Asn Val Asp Glu
E-->    1582 (265)             1270                1275                1280
        1584 Leu Gln Leu Pro Glu Gly Phe Arg Pro Asp Phe Arg Pro Lys Ile Pro
        1585           1285                1290                1295
        1587 Tyr Ser Glu Ser Ile Lys Glu Met Leu Thr Thr Phe Gly Thr Ala Thr
        1588           1300                1305                1310
        1590 Tyr Lys Val Gly Leu Lys Val His Pro Asn Glu Glu Asp Pro Arg Val
        1591      1315                1320                1325
        1593 Pro Ile Met Cys Trp Gly Ser Cys Ala Tyr Thr Ile Gln Ser Ile Glu
        1594      1330           1335                1340
        1596 Arg Ile Leu Ser Asp Glu Asp Lys Pro Leu Phe Gly Pro Leu Pro Cys
E-->    1597 (345)             1350                1355                1360
        1599 Arg Leu Asp Asp Cys Leu Arg Ser Leu Thr Arg Phe Ala Ala Ala His
        1600           1365                1370                1375
        1602 Trp Thr Val Ala Ser Val Ser Val Val Gln Gly His Phe Cys Lys Leu
        1603           1380                1385                1390
        1605 Phe Ala Ser Leu Val Pro Asn Asp Ser His Glu Glu Leu Pro Cys Ile
        1606      1395                1400                1405
        1608 Leu Asp Ile Asp Met Phe His Leu Leu Val Gly Leu Val Leu Ala Phe
        1609      1410           1415                1420
        1611 Pro Ala Leu Gln Cys Gln Asp Phe Ser Gly Ile Ser Leu Gly Thr Gly
E-->    1612 (425)             1430                1435                1440
        1614 Asp Leu His Ile Phe His Leu Val Thr Met Ala His Ile Ile Gln Ile
        1615           1445                1450                1455
        1617 Leu Leu Thr Ser Cys Thr Glu Glu Asn Gly Met Asp Gln Glu Asn Pro
        1618           1460                1465                1470
        1620 Pro Cys Glu Glu Glu Ser Ala Val Leu Ala Leu Tyr Lys Thr Leu His
        1621      1475                1480                1485
        1623 Gln Tyr Thr Gly Ser Ala Leu Lys Glu Ile Pro Ser Gly Trp His Leu
        1624      1490                1495                1500
        1626 Trp Arg Ser Val Arg Ala Gly Ile Met Pro Phe Leu Lys Cys Ser Ala
```

Same

RAW SEQUENCE LISTING   DATE: 01/29/2004
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         Input Set : A:\35966B.txt
         Output Set: N:\CRF4\01292004\J758672.raw

E--> 1627 505                 1510              1515              1520
1629 Leu Phe Phe His Tyr Leu Asn Gly Val Pro Ser Pro Pro Asp Ile Gln
1630            1525              1530              1535
1632 Val Pro Gly Thr Ser His Phe Glu His Leu Cys Ser Tyr Leu Ser Leu
1633            1540              1545              1550
1635 Pro Asn Asn Leu Ile Cys Leu Phe Gln Glu Asn Ser Glu Ile Met Asn
1636       1555              1560              1565
1638 Ser Leu Ile Glu Ser Trp Cys Arg Asn Ser Glu Val Lys Arg Tyr Leu
1639    1570              1575              1580
1641 Glu Gly Glu Arg Asp Ala Ile Arg Tyr Pro Arg Glu Ser Asn Lys Leu
E--> 1642 585                 1590              1595              1600
1644 Ile Asn Leu Pro Glu Asp Tyr Ser Ser Leu Ile Asn Gln Ala Ser Asn
1645            1605              1610              1615
1647 Phe Ser Cys Pro Lys Ser Gly Gly Asp Lys Ser Arg Ala Pro Thr Leu
1648            1620              1625              1630
1650 Cys Leu Val Cys Gly Ser Leu Leu Cys Ser Gln Ser Tyr Cys Cys Gln
1651       1635              1640              1645
1653 Thr Glu Leu Glu Gly Glu Asp Val Gly Ala Cys Thr Ala His Thr Tyr
1654    1650              1655              1660
1656 Ser Cys Gly Ser Gly Val Gly Ile Phe Leu Arg Val Arg Glu Cys Gln
E--> 1657 665                 1670              1675              1680
1659 Val Leu Phe Leu Ala Gly Lys Thr Lys Gly Cys Phe Tyr Ser Pro Pro
1660            1685              1690              1695
1662 Tyr Leu Asp Asp Tyr Gly Glu Thr Asp Gln Gly Leu Arg Arg Gly Asn
1663            1700              1705              1710
1665 Pro Leu His Leu Cys Lys Glu Arg Phe Lys Lys Ile Gln Lys Leu Trp
1666       1715              1720              1725
1668 His Gln His Ser Val Thr Glu Glu Ile Gly His Ala Gln Glu Ala Asn
1669    1730              1735              1740
1671 Gln Thr Leu Val Gly Ile Asp Trp Gln His Leu
E--> 1672 745                 1750              1755
2157 <210> SEQ ID NO: 6
2158 <211> LENGTH: 1755
2159 <212> TYPE: PRT
2160 <213> ORGANISM: Mouse
2162 <400> SEQUENCE: 6
2163 Met Ala Ser Glu Met Glu Pro Glu Val Gln Ala Ile Asp Arg Ser Leu
2164    1               5               10                  15
2166 Leu Glu Cys Ser Ala Glu Glu Ile Ala Gly Arg Trp Leu Gln Ala Thr
2167            20              25                  30
2169 Asp Leu Asn Arg Glu Val Tyr Gln His Leu Ala His Cys Val Pro Lys
2170       35              40                  45
2172 Ile Tyr Cys Arg Gly Pro Asn Pro Phe Pro Gln Lys Glu Asp Thr Leu
2173    50              55                  60
2175 Ala Gln His Ile Leu Leu Gly Pro Met Glu Trp Tyr Ile Cys Ala Glu
2176    65              70              75                  80
2178 Asp Pro Ala Leu Gly Phe Pro Lys Leu Glu Gln Ala Asn Lys Pro Ser
2179            85              90                  95
2181 His Leu Cys Gly Arg Val Phe Lys Val Gly Glu Pro Thr Tyr Ser Cys
```

JJ 13-15

```
2182            100              105              110
2184 Arg Asp Cys Ala Val Asp Pro Thr Cys Val Leu Cys Met Glu Cys Phe
2185     115              120              125
2187 Leu Gly Ser Ile His Arg Asp His Arg Tyr Arg Met Thr Thr Ser Gly
2188     130              135              140
2190 Gly Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu Ala Trp Lys Glu Gly
2191 145              150              155              160
2193 Pro Tyr Cys Gln Lys His Lys Leu Ser Ser Ser Glu Val Val Glu Glu
2194              165              170              175
2196 Glu Asp Pro Leu Val His Leu Ser Glu Asp Val Ile Ala Arg Thr Tyr
2197              180              185              190
2199 Asn Ile Phe Ala Ile Met Phe Arg Tyr Ala Val Asp Ile Leu Thr Trp
2200              195              200              205
2202 Glu Lys Glu Ser Glu Leu Pro Glu Asp Leu Glu Val Ala Glu Lys Ser
2203     210              215              220
2205 Asp Thr Tyr Tyr Cys Met Leu Phe Asn Asp Glu Val His Thr Tyr Glu
2206 225              230              235              240
2208 Gln Val Ile Tyr Thr Leu Gln Lys Ala Val Asn Cys Thr Gln Lys Glu
2209              245              250              255
2211 Ala Ile Gly Phe Ala Thr Thr Val Asp Arg Asp Gly Arg Arg Pro Val
2212              260              265              270
2214 Arg Tyr Gly Asp Phe Gln Tyr Cys Asp Gln Ala Lys Thr Val Ile Val
2215     275              280              285
2217 Arg Asn Thr Ser Arg Gln Thr Lys Pro Leu Lys Val Gln Val Met His
2218     290              295              300
2220 Ser Ser Val Ala Ala His Gln Asn Phe Gly Leu Lys Ala Leu Ser Trp
2221 305              310              315              320
2223 Leu Gly Ser Val Ile Gly Tyr Ser Asp Gly Leu Arg Arg Ile Leu Cys
2224              325              330              335
2226 Gln Val Gly Leu Gln Glu Gly Pro Asp Gly Glu Asn Ser Ser Leu Val
2227              340              345              350
2229 Asp Arg Leu Met Leu Asn Asp Ser Lys Leu Trp Lys Gly Ala Arg Ser
2230     355              360              365
2232 Val Tyr His Gln Leu Phe Met Ser Ser Leu Leu Met Asp Leu Lys Tyr
2233     370              375              380
2235 Lys Lys Leu Phe Ala Leu Arg Phe Ala Lys Asn Tyr Arg Gln Leu Gln
2236 385              390              395              400
2238 Arg Asp Phe Met Glu Asp Asp His Glu Arg Ala Val Ser Val Thr Ala
2239              405              410              415
2241 Leu Ser Val Gln Phe Phe Thr Ala Pro Thr Leu Ala Arg Met Leu Leu
2242              420              425              430
2244 Thr Glu Glu Asn Leu Met Thr Val Ile Ile Lys Ala Phe Met Asp His
2245     435              440              445
2247 Leu Lys His Arg Asp Ala Gln Gly Arg Phe Gln Phe Glu Arg Tyr Thr
2248     450              455              460
2250 Ala Leu Gln Ala Phe Lys Phe Arg Arg Val Gln Ser Leu Ile Leu Asp
2251 465              470              475              480
2253 Leu Lys Tyr Val Leu Ile Ser Lys Pro Thr Glu Trp Ser Asp Glu Leu
2254              485              490              495
```

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Input Set : A:\35966B.txt
Output Set: N:\CRF4\01292004\J758672.raw

```
2256 Arg Gln Lys Phe Leu Gln Gly Phe Asp Ala Phe Leu Glu Leu Leu Lys
2257         500             505             510
2259 Cys Met Gln Gly Met Asp Pro Ile Thr Arg Gln Val Gly Gln His Ile
2260         515             520             525
2262 Glu Met Glu Pro Glu Trp Glu Ala Ala Phe Thr Leu Gln Met Lys Leu
2263         530             535             540
2265 Thr His Val Ile Ser Met Val Gln Asp Trp Cys Ala Leu Asp Glu Lys
2266 545             550             555             560
2268 Val Leu Ile Glu Ala Tyr Lys Lys Cys Leu Ala Val Leu Thr Gln Cys
2269             565             570                 575
2271 His Gly Gly Phe Thr Asp Gly Glu Gln Pro Ile Thr Leu Ser Ile Cys
2272             580             585             590
2274 Gly His Ser Val Glu Thr Ile Arg Tyr Cys Val Ser Gln Glu Lys Val
2275         595             600             605
2277 Ser Ile His Leu Pro Ile Ser Arg Leu Leu Ala Gly Leu His Val Leu
2278         610             615             620
2280 Leu Ser Lys Ser Glu Val Ala Tyr Lys Phe Pro Glu Leu Leu Pro Leu
2281 625             630             635             640
2283 Ser Glu Leu Ser Pro Pro Met Leu Ile Glu His Pro Leu Arg Cys Leu
2284             645             650             655
2286 Val Leu Cys Ala Gln Val His Ala Gly Met Trp Arg Arg Asn Gly Phe
2287             660             665                 670
2289 Ser Leu Val Asn Gln Ile Tyr Tyr Tyr His Asn Val Lys Cys Arg Arg
2290         675             680                 685
2292 Glu Met Phe Asp Lys Asp Ile Val Met Leu Gln Thr Gly Val Ser Met
2293         690             695             700
2295 Met Asp Pro Asn His Phe Leu Met Ile Met Leu Ser Arg Phe Glu Leu
2296 705             710             715             720
2298 Tyr Gln Leu Phe Ser Thr Pro Asp Tyr Gly Lys Arg Phe Ser Ser Glu
2299             725             730             735
2301 Val Thr His Lys Asp Val Val Gln Gln Asn Asn Thr Leu Ile Glu Glu
2302             740             745             750
2304 Met Leu Tyr Leu Ile Ile Met Leu Val Gly Glu Arg Phe Asn Pro Gly
2305         755             760             765
2307 Val Gly Gln Val Ala Ala Thr Asp Glu Ile Lys Arg Glu Ile Ile His
2308         770             775             780
2310 Gln Leu Ser Ile Lys Pro Met Ala His Ser Glu Leu Val Lys Ser Leu
2311 785             790             795             800
2313 Pro Glu Asp Glu Asn Lys Glu Thr Gly Met Glu Ser Val Ile Glu Ser
2314             805             810             815
2316 Val Ala His Phe Lys Lys Pro Gly Leu Thr Gly Arg Gly Met Tyr Glu
2317             820             825             830
2319 Leu Lys Pro Glu Cys Ala Lys Glu Phe Asn Leu Tyr Phe Tyr His Phe
2320         835             840             845
2322 Ser Arg Ala Glu Gln Ser Lys Ala Glu Glu Ala Gln Arg Lys Leu Lys
2323         850             855             860
2325 Arg Glu Asn Lys Glu Asp Thr Ala Leu Pro Pro Pro Ala Leu Pro Pro
2326 865             870             875             880
2328 Phe Cys Pro Leu Phe Ala Ser Leu Val Asn Ile Leu Gln Cys Asp Val
```

RAW SEQUENCE LISTING   DATE: 01/29/2004
PATENT APPLICATION: US/10/758,672   TIME: 15:33:29

Input Set : A:\35966B.txt
Output Set: N:\CRF4\01292004\J758672.raw

```
2329                   885            890                   895
2331 Met Leu Tyr Ile Met Gly Thr Ile Leu Gln Trp Ala Val Glu His His
2332             900                   905                   910
2334 Gly Ser Ala Trp Ser Glu Ser Met Leu Gln Arg Val Leu His Leu Ile
2335             915                   920                   925
2337 Gly Met Ala Leu Gln Glu Glu Lys His His Leu Glu Asn Ala Val Glu
2338         930                   935                   940
2340 Gly His Val Gln Thr Phe Thr Phe Thr Gln Lys Ile Ser Lys Pro Gly
2341 945                   950                   955                   960
2343 Asp Ala Pro His Asn Ser Pro Ser Ile Leu Ala Met Leu Glu Thr Leu
2344             965                   970                   975
2346 Gln Asn Ala Pro Ser Leu Glu Ala His Lys Asp Met Ile Arg Trp Leu
2347             980                   985                   990
2349 Leu Lys Met Phe Asn Ala Ile Lys Lys Ile Arg Glu Cys Ser Ser Ser
2350             995                   1000                   1005
2352 Ser Pro Val Ala Glu Ala Glu Gly Thr Ile Met Glu Glu Ser Ser Arg
2353       1010                   1015                   1020
2355 Asp Lys Asp Lys Ala Glu Arg Lys Arg Lys Ala Glu Ile Ala Arg Leu
E--> 2356 025            1030                   1035                   1040
2358 Arg Arg Glu Lys Ile Met Ala Gln Met Ser Glu Met Gln Arg His Phe
2359             1045                   1050                   1055
2361 Ile Asp Glu Asn Lys Glu Leu Phe Gln Gln Thr Leu Glu Leu Asp Thr
2362         1060                   1065                   1070
2364 Ser Ala Ser Ala Thr Leu Asp Ser Ser Pro Pro Val Ser Asp Ala Ala
2365       1075                   1080                   1085
2367 Leu Thr Ala Leu Gly Pro Ala Gln Thr Gln Val Pro Glu Pro Arg Gln
2368     1090                   1095                   1100
2370 Phe Val Thr Cys Ile Leu Cys Gln Glu Glu Gln Glu Val Thr Val Gly
E--> 2371 105            1110                   1115                   1120
2373 Ser Arg Ala Met Val Leu Ala Ala Phe Val Gln Arg Ser Thr Val Leu
2374             1125                   1130                   1135
2376 Ser Lys Asp Arg Thr Lys Thr Ile Ala Asp Pro Glu Lys Tyr Asp Pro
2377             1140                   1145                   1150
2379 Leu Phe Met His Pro Asp Leu Ser Cys Gly Thr His Thr Gly Ser Cys
2380         1155                   1160                   1165
2382 Gly His Val Met His Ala His Cys Trp Gln Arg Tyr Phe Asp Ser Val
2383     1170                   1175                   1180
2385 Gln Ala Lys Glu Gln Arg Arg Gln Gln Arg Leu Arg Leu His Thr Ser
E--> 2386 185            1190                   1195                   1200
2388 Tyr Asp Val Glu Asn Gly Glu Phe Leu Cys Pro Leu Cys Glu Cys Leu
2389             1205                   1210                   1215
2391 Ser Asn Thr Val Ile Pro Leu Leu Leu Pro Pro Arg Ser Ile Leu Ser
2392             1220                   1225                   1230
2394 Arg Arg Leu Asn Phe Ser Asp Gln Pro Asp Leu Ala Gln Trp Thr Arg
2395         1235                   1240                   1245
2397 Ala Val Thr Gln Gln Ile Lys Val Val Gln Met Leu Arg Arg Lys His
2398     1250                   1255                   1260
2400 Asn Ala Ala Asp Thr Ser Ser Ser Glu Asp Thr Glu Ala Met Asn Ile
E--> 2401 265            1270                   1275                   1280
```

same

```
     2403 Ile Pro Ile Pro Glu Gly Phe Arg Pro Asp Phe Tyr Pro Arg Asn Pro
     2404             1285          1290          1295
     2406 Tyr Ser Asp Ser Ile Lys Glu Met Leu Thr Thr Phe Gly Thr Ala Ala
     2407         1300          1305          1310
     2409 Tyr Lys Val Gly Leu Lys Val His Pro Asn Glu Gly Asp Pro Arg Val
     2410     1315          1320          1325
     2412 Pro Ile Leu Cys Trp Gly Thr Cys Ala Tyr Thr Ile Gln Ser Ile Glu
     2413     1330          1335          1340
     2415 Arg Ile Leu Ser Asp Glu Glu Lys Pro Val Phe Gly Pro Leu Pro Cys
E--> 2416 345           1350          1355          1360
     2418 Arg Leu Asp Asp Cys Leu Arg Ser Leu Thr Arg Phe Ala Ala Ala His
     2419             1365          1370          1375
     2421 Trp Thr Val Ala Leu Leu Pro Val Val Gln Gly His Phe Cys Lys Leu
     2422         1380          1385          1390
     2424 Phe Ala Ser Leu Val Pro Ser Asp Ser Tyr Glu Asp Leu Pro Cys Ile
     2425     1395          1400          1405
     2427 Leu Asp Ile Asp Met Phe His Leu Leu Val Gly Leu Val Leu Ala Phe
     2428     1410          1415          1420
     2430 Pro Ala Leu Gln Cys Gln Asp Phe Ser Gly Ser Ser Leu Ala Thr Gly
E--> 2431 425           1430          1435          1440
     2433 Asp Leu His Ile Phe His Leu Val Thr Met Ala His Ile Val Gln Ile
     2434             1445          1450          1455
     2436 Leu Leu Thr Ser Cys Thr Glu Glu Asn Gly Met Asp Gln Glu Asn Pro
     2437         1460          1465          1470
     2439 Thr Gly Glu Glu Glu Leu Ala Ile Leu Ser Leu His Lys Thr Leu His
     2440     1475          1480          1485
     2442 Gln Tyr Thr Gly Ser Ala Leu Lys Glu Ala Pro Ser Gly Trp His Leu
     2443     1490          1495          1500
     2445 Trp Arg Ser Val Arg Ala Ala Ile Met Pro Phe Leu Lys Cys Ser Ala
E--> 2446 505           1510          1515          1520
     2448 Leu Phe Phe His Tyr Leu Asn Gly Val Pro Ala Pro Pro Asp Leu Gln
     2449             1525          1530          1535
     2451 Val Ser Gly Thr Ser His Phe Glu His Leu Cys Asn Tyr Leu Ser Leu
     2452     1540          1545          1550
     2454 Pro Thr Asn Leu Ile His Leu Phe Gln Glu Asn Ser Asp Ile Met Asn
     2455     1555          1560          1565
     2457 Ser Leu Ile Glu Ser Trp Cys Gln Asn Ser Glu Val Lys Arg Tyr Leu
     2458     1570          1575          1580
     2460 Asn Gly Glu Arg Gly Ala Ile Ser Tyr Pro Arg Gly Ala Asn Lys Leu
E--> 2461 585           1590          1595          1600
     2463 Ile Asp Leu Pro Glu Asp Tyr Ser Ser Leu Ile Asn Gln Ala Ser Asn
     2464             1605          1610          1615
     2466 Phe Ser Cys Pro Lys Ser Gly Gly Asp Lys Ser Arg Ala Pro Thr Leu
     2467         1620          1625          1630
     2469 Cys Leu Val Cys Gly Ser Leu Leu Cys Ser Gln Ser Tyr Cys Cys Gln
     2470     1635          1640          1645
     2472 Ala Glu Leu Glu Gly Glu Asp Val Gly Ala Cys Thr Ala His Thr Tyr
     2473     1650          1655          1660
     2475 Ser Cys Gly Ser Gly Ala Gly Ile Phe Leu Arg Val Arg Glu Cys Gln
```

Jane

Input Set : **A:\35966B.txt**
Output Set: **N:\CRF4\01292004\J758672.raw**

```
E--> 2476 665              1670            1675              1680
     2478 Val Leu Phe Leu Ala Gly Lys Thr Lys Gly Cys Phe Tyr Ser Pro Pro
     2479              1685            1690              1695
     2481 Tyr Leu Asp Asp Tyr Gly Glu Thr Asp Gln Gly Leu Arg Arg Gly Asn
     2482         1700            1705              1710
     2484 Pro Leu His Leu Cys Gln Glu Arg Phe Arg Lys Ile Gln Lys Leu Trp
     2485     1715            1720            1725
     2487 Gln Gln His Ser Ile Thr Glu Glu Ile Gly His Ala Gln Glu Ala Asn
     2488   1730            1735            1740
     2490 Gln Thr Leu Val Gly Ile Asp Trp Gln His Leu
E--> 2491 745              1750            1755
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     2957 <212> TYPE: DNA
     2958 <213> ORGANISM: Homo sapiens
     2960 <400> SEQUENCE: 18
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     2963 acccctcagc gtctggcatc ttggtgggat cagcaagttg attttttatac tgctttcttg 120
     2965 catcatttgg cacaattggt gccagaaatt tactttgctg aaatggaccc agacttggaa 180
     2967 aagcaggagg aaagtgtaca aatgtcaata ttcactccac tggaatggta cttatttgga 240
     2969 gaagatccag atatttgctt agagaaattg aagcacagtg gagcatttca gctttgtggg 300
     2971 agggttttca aaagtggaga gacaacctat tcttgcaggg attgtgcaat tgatccaaca 360
     2973 tgtgtactct gtatggactg cttccaggac agtgttcata aaaatcatcg ttacaagatg 420
     2975 catacttcta ctggaggagg gttctgtgac tgtggagaca cagaggcatg gaaaactggc 480
     2977 cctttttgtg taaatcatga acctggaaga gcaggtacta taaaagagaa ttcacgctgt 540
     2979 ccgttgaatg aagaggtaat tgtccaagcc aggaaaatat ttccttcagt gataaaatat 600
     2981 gtcgtagaaa tgactatatg ggaagaggaa aaagaactgc ctcctgaact ccagataagg 660
E--> 2983 knryycvndh hsydhgtcat atacagccta caaagagctc ttgactgtga gctcgcagag 720
     2985 gcccagttgc ataccactgc cattgacaaa gagggtcgtc gggctgttaa agcgggagct 780
     2987 tatgctgctt gccaggaagc aaaggaagat ataaagagtc attcagaaaa tgtctctcaa 840
     2989 catccacttc atgtagaagt attacactca gagattatgg ctcatcagaa atttgctttg 900
     2991 cgtcttggtt cctggatgaa caaaattatg agctattcaa gtgactttag gcagatcttt 960
     2993 tgccaagcat gccttagaga agaacctgac tcggagaatc cctgtctcat aagcaggtta 1020
     2995 atgctttggg atgcaaagct ttataaaggt gcccgtaaga tccttcatga attgatcttc 1080
     2997 agcagttttt ttatggagat ggaatacaaa aaactctttg ctatggaatt tgtgaagtat 1140
     2999 tataaacaac tgcagaaaga atatatcagt gatgatcatg acagaagtat ctctataact 1200
     3001 gcactttcag ttcagatgtt tactgttcct actctggctc gacatcttat tgaagagcag 1260
     3003 aatgttatct ctgtcattac tgaaactctg ctagaagttt tacctgagta cttggacagg 1320
     3005 aacaataaat tcaacttcca gggttatagc caggacaaat gggaagagt atatgcagta 1380
     3007 atatgtgacc taaagtatat cctgatcagc aaacccacaa tatggacaga aagattaaga 1440
     3009 atgcagttcc ttgaaggttt tcgatctttt ttgaagattc ttacctgtat gcagggaatg 1500
     3011 gaagaaatcc gaagacaggt tgggcaacac attgaagtgg atcctgattg ggaggctgcc 1560
     3013 attgctatac agatgcaatt gaagaatatt ttactcatgt tccaagagtg gtgtgcttgt 1620
     3015 gatgaagaac tcttacttgt ggcttataaa gaatgtcaca aagctgtgat gaggtgcagt 1680
     3017 accagtttca tatctagtag caagacagta gtacaatcgt gtggacatag tttggaaaca 1740
     3019 aagtcctaca gagtatctga ggatcttgta agcatacatc tgccactctc taggacctt 1800
     3021 gctggtcttc atgtacgttt aagcaggctg ggtgctgttt caagactgca tgaatttgtg 1860
     3023 tcttttgagg actttcaagt agaggtacta gtggaatatc ctttacgttg tctggtgttg 1920
     3025 gttgcccagg ttgttgctga gatgtggcga agaaatggac tgtctcttat tagccaggtg 1980
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3027 ttttattacc aagatgttaa gtgcagagaa gaaatgtatg ataaagatat catcatgctt 2040
3029 cagattggtg catctttaat ggatcccaat aagttcttgt tactggtact tcagaggtat 2100
3031 gaacttgccg aggctttaa caagaccata tctacaaaag accaggattt gattaaacaa 2160
3033 tataatacac taatagaaga aatgcttcag gtcctcatct atattgtggg tgagcgttat 2220
3035 gtacctggag tgggaaatgt gaccaaagaa gaggtcacaa tgagagaaat cattcacttg 2280
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3041 tcaggccatg gagtttatga actaaaagat gaatcactga aagacttcaa tatgtacttt 2460
3043 tatcattact ccaaaaccca gcatagcaag gctgaacata tgcagaagaa aaggagaaaa 2520
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3047 agcaaagtga ttaaccttct caactgtgat atcatgatgt acattctcag gaccgtattt 2640
3049 gagcgggcaa tagacacaga ttctaacttg tggaccgaag ggatgctcca aatggctttt 2700
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3053 gaagtaacat ttgactttta tcataaggct tcaagattgg gaagttcagc catgaatata 2820
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3059 gtagcaacca catcaggatc ggaatctatt aagaatgatg agattactca tgataaagaa 3000
3061 aaagcagaac gaaaaagaaa agctgaagct gctaggctac atcgccagaa gatcatggct 3060
3063 cagatgtctg ccttacagaa aaacttcatt gaaactcata aactcatgta tgacaataca 3120
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3067 gactactcta gaattgcttt gggtcctaaa cggggtccat ctgttactga aaaggaggtg 3240
3069 ctgacgtgca tcctttgcca agaagaacag gaggtgaaaa tagaaaataa tgccatggta 3300
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3077 cagctgagct ctcagcagcg cattcatgtt gacctttttg acttggaaag tggagaatat 3540
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3081 caaaagataa acagtgagaa tgcagatgct cttgctcaac ttttgaccct ggcacggtgg 3660
3083 atacagactg ttctggccag aatatcaggt tataatataa gacatgctaa aggagaaaac 3720
3085 ccaattccta ttttctttaa tcaaggaatg ggagattcta ctttggagtt ccattccatc 3780
3087 ctgagttttg gcgttgagtc ttcgattaaa tattcaaata gcatcaagga aatggttatt 3840
3089 ctctttgcca caacaattta tagaattgga ttgaaagtgc cacctgatga aagggatcct 3900
3091 cgagtcccca tgctgacctg gagcacctgc gctttcacta tccaggcaat tgaaaatcta 3960
3093 ttgggagatg aaggaaaacc tctgtttgga gcacttcaaa ataggcagca taatggtctg 4020
3095 aaagcattaa tgcagtttgc agttgcacag aggattacct gtcctcaggt cctgatacag 4080
3097 aaacatctgg ttcgtcttct atcagttgtt cttcctaaca taaaatcaga agatacacca 4140
3099 tgccttctgt ctatagatct gtttcatgtt ttggtgggtg ctgtgttagc attcccatcc 4200
3101 ttgtattggg atgaccctgt tgatctgcag ccttcttcag ttagttcttc ctataaccac 4260
3103 ctttatctct tccatttgat caccatggca cacatgcttc agatactact tacagtagac 4320
3105 acaggcctac cccttgctca ggttcaagaa gacagtgaag aggctcattc cgcatcttct 4380
3107 ttctttgcag aaatttctca atatacaagt ggctccattg ggtgtgatat tcctggctgg 4440
3109 tatttgtggg tctcactgaa gaatggcatc accccttatc ttcgctgtgc tgcattgttt 4500
3111 ttccactatt tacttggggt aactccgcct gaggaactgc ataccaattc tgcagaagga 4560
3113 gagtacagtg cactctgtag ctatctatct ttacctacaa atttgttcct gctcttccag 4620
3115 gaatattggg atactgtaag gccccttgctc cagaggcggt gtgcagatcc tgccttacta 4680
3117 aactgtttga agcaaaaaaa caccgtggtc aggtacccta gaaaaagaaa tagtttgata 4740
3119 gagcttcctg atgactatag ctgcctcctg aatcaagctt ctcatttcag gtgcccacgg 4800
3121 tctgcagatg atgagcgaaa gcatcctgtc ctctgccttt tctgtggggc tatactatgt 4860
3123 tctcagaaca tttgctgcca ggaaattgtg aacggggaag aggttggagc ttgcatttt 4920
```

Input Set : **A:\35966B.txt**
Output Set: **N:\CRF4\01292004\J758672.raw**

```
3125 cacgcacttc actgtggagc cggagtctgc attttcctaa aaatcagaga atgccgagtg 4980
3127 gtcctggttg aaggtaaagc cagaggctgt gcctatccag ctccttactt ggatgaatat 5040
3129 ggagaaacag accctggcct gaagaggggc aaccccttc  atttatctcg tgagcggtat 5100
3131 cggaagctcc atttggtctg gcaacaacac tgcattatag aagagattgc taggagccaa 5160
3133 gagactaatc agatgttatt tggattcaac tggcagttac tgtga            5205
```

3136 <210> SEQ ID NO: 19
3137 <211> LENGTH: ~~(1735)~~ 1734
3138 <212> TYPE: PRT
3139 <213> ORGANISM: Homo sapiens   p.21
3141 <400> SEQUENCE: 19

```
3142 Ala Met Glu Gly Asn Met Ala Asp Glu Glu Ala Gly Gly Thr Glu Arg
3143  1               5                  10                  15
3145 Met Glu Ile Ser Ala Glu Leu Pro Gln Thr Pro Gln Arg Leu Ala Ser
3146                 20                  25                  30
3148 Trp Trp Asp Gln Gln Val Asp Phe Tyr Thr Ala Phe Leu His His Leu
3149             35                  40                  45
3151 Ala Gln Leu Val Pro Glu Ile Tyr Phe Ala Glu Met Asp Pro Asp Leu
3152         50                  55                  60
3154 Glu Lys Gln Glu Glu Ser Val Gln Met Ser Ile Phe Thr Pro Leu Glu
3155  65                  70                  75                  80
3157 Trp Tyr Leu Phe Gly Glu Asp Pro Asp Ile Cys Leu Glu Lys Leu Lys
3158             85                  90                  95
3160 His Ser Gly Ala Phe Gln Leu Cys Gly Arg Val Phe Lys Ser Gly Glu
3161             100                 105                 110
3163 Thr Thr Tyr Ser Cys Arg Asp Cys Ala Ile Asp Pro Thr Cys Val Leu
3164             115                 120                 125
3166 Cys Met Asp Cys Phe Gln Asp Ser Val His Lys Asn His Arg Tyr Lys
3167         130                 135                 140
3169 Met His Thr Ser Thr Gly Gly Gly Phe Cys Asp Cys Gly Asp Thr Glu
3170 145                 150                 155                 160
3172 Ala Trp Lys Thr Gly Pro Phe Cys Val Asn His Glu Pro Gly Arg Ala
3173             165                 170                 175
3175 Gly Thr Ile Lys Glu Asn Ser Arg Cys Pro Leu Asn Glu Glu Val Ile
3176             180                 185                 190
3178 Val Gln Ala Arg Lys Ile Phe Pro Ser Val Ile Lys Tyr Val Val Glu
3179             195                 200                 205
3181 Met Thr Ile Trp Glu Glu Glu Lys Glu Leu Pro Pro Glu Leu Gln Ile
3182         210                 215                 220
3184 Arg Glu Lys Asn Glu Arg Tyr Tyr Cys Val Leu Phe Asn Asp Glu His
3185 225                 230                 235                 240
3187 His Ser Tyr Asp His Val Ile Tyr Ser Leu Gln Arg Ala Leu Asp Cys
3188             245                 250                 255
3190 Glu Leu Ala Glu Ala Gln Leu His Thr Thr Ala Ile Asp Lys Glu Gly
3191             260                 265                 270
3193 Arg Arg Ala Val Lys Ala Gly Ala Tyr Ala Ala Cys Gln Glu Ala Lys
3194             275                 280                 285
3196 Glu Asp Ile Lys Ser His Ser Glu Asn Val Ser Gln His Pro Leu His
3197         290                 295                 300
3199 Val Glu Val Leu His Ser Glu Ile Met Ala His Gln Lys Phe Ala Leu
```

```
3200 305                 310                 315                 320
3202 Arg Leu Gly Ser Trp Met Asn Lys Ile Met Ser Tyr Ser Ser Asp Phe
3203                 325                 330                 335
3205 Arg Gln Ile Phe Cys Gln Ala Cys Leu Arg Glu Glu Pro Asp Ser Glu
3206                 340                 345                 350
3208 Asn Pro Cys Leu Ile Ser Arg Leu Met Leu Trp Asp Ala Lys Leu Tyr
3209                 355                 360                 365
3211 Lys Gly Ala Arg Lys Ile Leu His Glu Leu Ile Phe Ser Ser Phe Phe
3212     370                 375                 380
3214 Met Glu Met Glu Tyr Lys Lys Leu Phe Ala Met Glu Phe Val Lys Tyr
3215 385                 390                 395                 400
3217 Tyr Lys Gln Leu Gln Lys Glu Tyr Ile Ser Asp Asp His Asp Arg Ser
3218                 405                 410                 415
3220 Ile Ser Ile Thr Ala Leu Ser Val Gln Met Phe Thr Val Pro Thr Leu
3221             420                 425                 430
3223 Ala Arg His Leu Ile Glu Glu Gln Asn Val Ile Ser Val Ile Thr Glu
3224             435                 440                 445
3226 Thr Leu Leu Glu Val Leu Pro Glu Tyr Leu Asp Arg Asn Asn Lys Phe
3227     450                 455                 460
3229 Asn Phe Gln Gly Tyr Ser Gln Asp Lys Leu Gly Arg Val Tyr Ala Val
3230 465                 470                 475                 480
3232 Ile Cys Asp Leu Lys Tyr Ile Leu Ile Ser Lys Pro Thr Ile Trp Thr
3233                 485                 490                 495
3235 Glu Arg Leu Arg Met Gln Phe Leu Glu Gly Phe Arg Ser Phe Leu Lys
3236             500                 505                 510
3238 Ile Leu Thr Cys Met Gln Gly Met Glu Glu Ile Arg Arg Gln Val Gly
3239             515                 520                 525
3241 Gln His Ile Glu Val Asp Pro Asp Trp Glu Ala Ala Ile Ala Ile Gln
3242     530                 535                 540
3244 Met Gln Leu Lys Asn Ile Leu Leu Met Phe Gln Glu Trp Cys Ala Cys
3245 545                 550                 555                 560
3247 Asp Glu Glu Leu Leu Leu Val Ala Tyr Lys Glu Cys His Lys Ala Val
3248                 565                 570                 575
3250 Met Arg Cys Ser Thr Ser Phe Ile Ser Ser Ser Lys Thr Val Val Gln
3251             580                 585                 590
3253 Ser Cys Gly His Ser Leu Glu Thr Lys Ser Tyr Arg Val Ser Glu Asp
3254             595                 600                 605
3256 Leu Val Ser Ile His Leu Pro Leu Ser Arg Thr Leu Ala Gly Leu His
3257     610                 615                 620
3259 Val Arg Leu Ser Arg Leu Gly Ala Val Ser Arg Leu His Glu Phe Val
3260 625                 630                 635                 640
3262 Ser Phe Glu Asp Phe Gln Val Glu Val Leu Val Glu Tyr Pro Leu Arg
3263                 645                 650                 655
3265 Cys Leu Val Leu Val Ala Gln Val Val Ala Glu Met Trp Arg Arg Asn
3266             660                 665                 670
3268 Gly Leu Ser Leu Ile Ser Gln Val Phe Tyr Tyr Gln Asp Val Lys Cys
3269             675                 680                 685
3271 Arg Glu Glu Met Tyr Asp Lys Asp Ile Ile Met Leu Gln Ile Gly Ala
3272     690                 695                 700
```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/758,672

DATE: 01/29/2004
TIME: 15:33:29

Input Set : A:\35966B.txt
Output Set: N:\CRF4\01292004\J758672.raw

```
3274 Ser Leu Met Asp Pro Asn Lys Phe Leu Leu Leu Val Leu Gln Arg Tyr
3275 705                     710                 715                 720
3277 Glu Leu Ala Glu Ala Phe Asn Lys Thr Ile Ser Thr Lys Asp Gln Asp
3278                 725                 730                 735
3280 Leu Ile Lys Gln Tyr Asn Thr Leu Ile Glu Glu Met Leu Gln Val Leu
3281             740                 745                 750
3283 Ile Tyr Ile Val Gly Glu Arg Tyr Val Pro Gly Val Gly Asn Val Thr
3284         755                 760             765
3286 Lys Glu Glu Val Thr Met Arg Glu Ile Ile His Leu Leu Cys Ile Glu
3287     770                 775                 780
3289 Pro Met Pro His Ser Ala Ile Ala Lys Asn Leu Pro Glu Asn Glu Asn
3290 785                 790                 795                 800
3292 Asn Glu Thr Gly Leu Glu Asn Val Ile Asn Lys Val Ala Thr Phe Lys
3293                 805                 810                 815
3295 Lys Pro Gly Val Ser Gly His Gly Val Tyr Glu Leu Lys Asp Glu Ser
3296             820                 825                 830
3298 Leu Lys Asp Phe Asn Met Tyr Phe Tyr His Tyr Ser Lys Thr Gln His
3299         835                 840                 845
3301 Ser Lys Ala Glu His Met Gln Lys Lys Arg Arg Lys Gln Glu Asn Lys
3302     850                 855                 860
3304 Asp Glu Ala Leu Pro Pro Pro Pro Pro Pro Glu Phe Cys Pro Ala Phe
3305 865                 870                 875                 880
3307 Ser Lys Val Ile Asn Leu Leu Asn Cys Asp Ile Met Met Tyr Ile Leu
3308             885                 890                 895
3310 Arg Thr Val Phe Glu Arg Ala Ile Asp Thr Asp Ser Asn Leu Trp Thr
3311         900                 905                 910
3313 Glu Gly Met Leu Gln Met Ala Phe His Ile Leu Ala Leu Gly Leu Leu
3314         915                 920                 925
3316 Glu Glu Lys Gln Gln Leu Gln Lys Ala Pro Glu Glu Glu Val Thr Phe
3317     930                 935                 940
3319 Asp Phe Tyr His Lys Ala Ser Arg Leu Gly Ser Ser Ala Met Asn Ile
3320 945                 950                 955                 960
3322 Gln Met Leu Leu Glu Lys Leu Lys Gly Ile Pro Gln Leu Glu Gly Gln
3323             965                 970                 975
3325 Lys Asp Met Ile Thr Trp Ile Leu Gln Met Phe Asp Thr Val Lys Arg
3326             980                 985                 990
3328 Leu Arg Glu Lys Ser Cys Leu Ile Val Ala Thr Thr Ser Gly Ser Glu
3329         995                 1000                1005
3331 Ser Ile Lys Asn Asp Glu Ile Thr His Asp Lys Glu Lys Ala Glu Arg
3332     1010                1015                1020
3334 Lys Arg Lys Ala Glu Ala Ala Arg Leu His Arg Gln Lys Ile Met Ala
3335 1025                1030                1035                1040
3337 Gln Met Ser Ala Leu Gln Lys Asn Phe Ile Glu Thr His Lys Leu Met
3338             1045                1050                1055
3340 Tyr Asp Asn Thr Ser Glu Met Pro Gly Lys Glu Asp Ser Ile Met Glu
3341             1060                1065                1070
3343 Glu Glu Ser Thr Pro Ala Val Ser Asp Tyr Ser Arg Ile Ala Leu Gly
3344         1075                1080                1085
3346 Pro Lys Arg Gly Pro Ser Val Thr Glu Lys Glu Val Leu Thr Cys Ile
```

RAW SEQUENCE LISTING   DATE: 01/29/2004
PATENT APPLICATION: **US/10/758,672**   TIME: 15:33:29

Input Set : **A:\35966B.txt**
Output Set: **N:\CRF4\01292004\J758672.raw**

```
3347    1090                1095                1100
3349 Leu Cys Gln Glu Glu Gln Glu Val Lys Ile Glu Asn Asn Ala Met Val
3350 1105             1110             1115             1120
3352 Leu Ser Ala Cys Val Gln Lys Ser Thr Ala Leu Thr Gln His Arg Gly
3353             1125             1130             1135
3355 Lys Pro Ile Glu Leu Ser Gly Glu Ala Leu Asp Pro Leu Phe Met Asp
3356        1140             1145             1150
3358 Pro Asp Leu Ala Tyr Gly Thr Tyr Thr Gly Ser Cys Gly His Val Met
3359        1155             1160             1165
3361 His Ala Val Cys Trp Gln Lys Tyr Phe Glu Ala Val Gln Leu Ser Ser
3362     1170             1175             1180
3364 Gln Gln Arg Ile His Val Asp Leu Phe Asp Leu Glu Ser Gly Glu Tyr
3365 1185             1190             1195             1200
3367 Leu Cys Pro Leu Cys Lys Ser Leu Cys Asn Thr Val Ile Pro Ile Ile
3368             1205             1210             1215
3370 Pro Leu Gln Pro Gln Lys Ile Asn Ser Glu Asn Ala Asp Ala Leu Ala
3371        1220             1225             1230
3373 Gln Leu Leu Thr Leu Ala Arg Trp Ile Gln Thr Val Leu Ala Arg Ile
3374        1235             1240             1245
3376 Ser Gly Tyr Asn Ile Arg His Ala Lys Gly Glu Asn Pro Ile Pro Ile
3377     1250             1255             1260
3379 Phe Phe Asn Gln Gly Met Gly Asp Ser Thr Leu Glu Phe His Ser Ile
3380 1265             1270             1275             1280
3382 Leu Ser Phe Gly Val Glu Ser Ser Ile Lys Tyr Ser Asn Ser Ile Lys
3383             1285             1290             1295
3385 Glu Met Val Ile Leu Phe Ala Thr Thr Ile Tyr Arg Ile Gly Leu Lys
3386        1300             1305             1310
3388 Val Pro Pro Asp Glu Arg Asp Pro Arg Val Pro Met Leu Thr Trp Ser
3389        1315             1320             1325
3391 Thr Cys Ala Phe Thr Ile Gln Ala Ile Glu Asn Leu Leu Gly Asp Glu
3392     1330             1335             1340
3394 Gly Lys Pro Leu Phe Gly Ala Leu Gln Asn Arg Gln His Asn Gly Leu
3395 1345             1350             1355             1360
3397 Lys Ala Leu Met Gln Phe Ala Val Ala Gln Arg Ile Thr Cys Pro Gln
3398             1365             1370             1375
3400 Val Leu Ile Gln Lys His Leu Val Arg Leu Leu Ser Val Val Leu Pro
3401        1380             1385             1390
3403 Asn Ile Lys Ser Glu Asp Thr Pro Cys Leu Leu Ser Ile Asp Leu Phe
3404        1395             1400             1405
3406 His Val Leu Val Gly Ala Val Leu Ala Phe Pro Ser Leu Tyr Trp Asp
3407     1410             1415             1420
3409 Asp Pro Val Asp Leu Gln Pro Ser Ser Val Ser Ser Ser Tyr Asn His
3410 1425             1430             1435             1440
3412 Leu Tyr Leu Phe His Leu Ile Thr Met Ala His Met Leu Gln Ile Leu
3413             1445             1450             1455
3415 Leu Thr Val Asp Thr Gly Leu Pro Leu Ala Gln Val Gln Glu Asp Ser
3416        1460             1465             1470
3418 Glu Glu Ala His Ser Ala Ser Ser Phe Phe Ala Glu Ile Ser Gln Tyr
3419        1475             1480             1485
```

```
3421 Thr Ser Gly Ser Ile Gly Cys Asp Ile Pro Gly Trp Tyr Leu Trp Val
3422    1490                1495                1500
3424 Ser Leu Lys Asn Gly Ile Thr Pro Tyr Leu Arg Cys Ala Ala Leu Phe
3425 1505                1510                1515                1520
3427 Phe His Tyr Leu Leu Gly Val Thr Pro Pro Glu Glu Leu His Thr Asn
3428                1525                1530                1535
3430 Ser Ala Glu Gly Glu Tyr Ser Ala Leu Cys Ser Tyr Leu Ser Leu Pro
3431                1540                1545                1550
3433 Thr Asn Leu Phe Leu Leu Phe Gln Glu Tyr Trp Asp Thr Val Arg Pro
3434        1555                1560                1565
3436 Leu Leu Gln Arg Arg Cys Ala Asp Pro Ala Leu Leu Asn Cys Leu Lys
3437    1570                1575                1580
3439 Gln Lys Asn Thr Val Val Arg Tyr Pro Arg Lys Arg Asn Ser Leu Ile
3440 1585                1590                1595                1600
3442 Glu Leu Pro Asp Asp Tyr Ser Cys Leu Leu Asn Gln Ala Ser His Phe
3443                1605                1610                1615
3445 Arg Cys Pro Arg Ser Ala Asp Asp Glu Arg Lys His Pro Val Leu Cys
3446                1620                1625                1630
3448 Leu Phe Cys Gly Ala Ile Leu Cys Ser Gln Asn Ile Cys Cys Gln Glu
3449        1635                1640                1645
3451 Ile Val Asn Gly Glu Glu Val Gly Ala Cys Ile Phe His Ala Leu His
3452    1650                1655                1660
3454 Cys Lys Ala Arg Gly Cys Ala Tyr Pro Ala Pro Tyr Leu Asp Glu Tyr
3455 1665                1670                1675                1680
3457 Gly Glu Thr Asp Pro Gly Leu Lys Arg Gly Asn Pro Leu His Leu Ser
3458                1685                1690                1695
3460 Arg Glu Arg Tyr Arg Lys Leu His Leu Val Trp Gln Gln His Cys Ile
3461                1700                1705                1710
3463 Ile Glu Glu Ile Ala Arg Ser Gln Glu Thr Asn Gln Met Leu Phe Gly
3464        1715                1720                1725
E--> 3466 Phe Asn Trp Gln Leu Leu *
E--> 3467    1730                1735
```

delete

do not show stop codon, It does not represent an amino acid.

VARIABLE LOCATION SUMMARY   DATE: 01/29/2004
PATENT APPLICATION: US/10/758,672   TIME: 15:33:30

error explanation ﹨ Input Set : **A:\35966B.txt**
                       Output Set: **N:\CRF4\01292004\J758672.raw**

<u>Use of n's or Xaa's(NEW RULES):</u>
Use of n's and/or Xaa's have been detected in the Sequence Listing.
Use of <220> to <223> is MANDATORY if n's or Xaa's are present.
in <220> to <223> section, please explain location of n or Xaa, and which
residue n or Xaa represents.

Seq#:18; N Pos. 662,668

VERIFICATION SUMMARY
PATENT APPLICATION: **US/10/758,672**

DATE: 01/29/2004
TIME: 15:33:30

Input Set : **A:\35966B.txt**
Output Set: **N:\CRF4\01292004\J758672.raw**

```
L:11 M:270 C: Current Application Number differs, Replaced Current Application Number
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:710 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2
L:1537 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:4
M:332 Repeated in SeqNo=4
L:2356 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:6
M:332 Repeated in SeqNo=6
L:2983 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:18
L:3466 M:342 E: Invalid Stop Code On Error, STOP CODON:*
L:3467 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:19
```